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MISSILE MATERIEL READINESS REPORTING SYSTEM. EXECUTIVE SUMMARY.(U)
OCT 80 J A BAGGETT, R S DOTSON
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Technical Report D-81-1

MISSILE MATERIEL READINESS REPORTING SYSTEM

EXECUTIVE SUMMARY

OCTOBER 1980

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U.S. ARMY MISSILE COMMAND

Redstone Arsenal, Alabama 35898

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Plans, Analysis, and Evaluation Directorate
US Army Missile Command
Redstone Arsenal, AL 35898

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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This Executive Summary describes the application of AR 750-40 Missile Readiness Reporting. The report prescribes responsibilities and procedures for evaluating and reporting the materiel readiness of missile equipment. Equipment to be reported includes JCE/MTCE systems used for tactical purposes, training equipment, operational readiness float equipment, and selected other missile equipment as directed for a specified purpose and period of time. The reporting system is as follows: _____ (Continued on reverse) | | |

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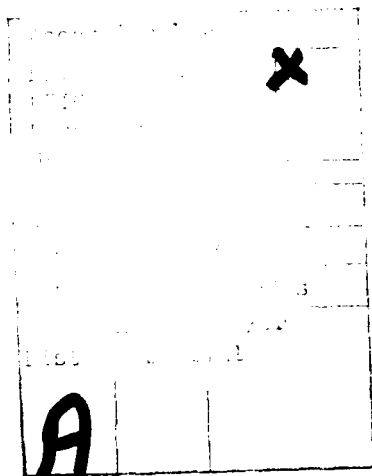
DA Form 3266 - Missile Equipment Status Report, used for each reportable failure (Figure 1).

DA Form 3266-1 - Missile Materiel Readiness Report, used for monthly consolidation of DA Form 3266 (Figure 2).

The DA Form 3266-1 serves as the basis for equipment status ratings reported for missile systems designated as pacing items in AR 220-1, Unit Status Reporting.

FOREWORD

The Materiel Readiness Reporting System Executive Summary was developed by the US Army Missile Command under the general technical cognizance of Mr. B. J. Risse', Acting Director, Plans, Analysis, and Evaluation Directorate, US Army Missile Command, Redstone Arsenal, AL 35898. AR 750-40, Missile Materiel Readiness Report is the basic document for this Executive Summary.



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MISSILE MATERIEL READINESS REPORTING SYSTEM

EXECUTIVE SUMMARY

ABSTRACT

AR 750-40 Missile Materiel Readiness Report prescribes responsibilities and procedures for evaluating and reporting the materiel readiness of missile equipment. Equipment to be reported includes TOE/MTOE systems used for tactical purposes, training equipment, operational readiness float equipment, and selected other missile equipment as directed for a specified purpose and period of time. The reporting system comprises two forms:

DA Form 3266 - Missile Equipment Status Report, used for each reportable failure (Figure 1).

DA Form 3266-1 - Missile Materiel Readiness Report, used for monthly consolidation of DA Form 3266 (Figure 2).

The DA Form 3266-1 serves as the basis for equipment status ratings reported for missile systems designated as pacing items in AR 220-1, Unit Status Reporting.

1. Introduction

The Missile Materiel Readiness Report was developed and introduced in January 1980 to replace the Materiel Readiness Report DA Form 2406. It was important to change from DA Form 2406 because it was a quarterly report and gave no indication as to what specific action was needed to correct degraded readiness conditions in specific units, missile systems, or theaters. A simple system was developed consisting of failure reports (DA Form 3266) which are rolled up into monthly reports (DA Form 3266-1). These reports are key punched as received and form MICOM's readiness evaluation data base.

2. Objectives

The schedule of objectives for the AR 750-40 reporting system were as follows:

- a. Convert readiness rating criteria from red/amber/green to go no go, design forms, write, staff, and publish AR 750-40 (Aug 78 - Dec 79) (Figure 3).
- b. Establish mechanized AR 750-40 reporting system (Aug 79 - Sep 80).
- c. Initiate AR 750-40 reporting system from field (Big 4 Systems), Jan 80.

| MISSILE EQUIPMENT STATUS REPORT For use of this form, see AR 750-40, the proponent agency is DCSLOG | | | | REQUIREMENT CONTROL SYMBOL CSGLD-1863 | |
|---|-------------------------|--|--------------------------------|--|--------------------|
| TO COMMANDER 2nd BN, 57th ADA APO NY 01903 | | 1. AUTODIN USE ONLY (1.3 common) DIC #A- (A) (B) (C) | | 2. REPORT NO (4.9 common) 000076 | |
| FROM COMMANDER BTRY C, 2nd BN, 57th ADA APO NY 01973 | | 5. TYPE OF REPORT (2.2 common) a. <input checked="" type="checkbox"/> ORIGINAL b. <input type="checkbox"/> CHANGE | | 6. JULIAN DATE (2.3.26 common) 0066 | |
| 9. END ITEM STATUS (3.0) a. <input type="checkbox"/> MISSION CAPABLE (ANMCS) b. <input checked="" type="checkbox"/> NOT MISSION CAPABLE | | 10. JULIAN DATE/TIME ITEM NON-OPERATIONAL DATE 0066 (3.1.34) TIME 1400 (3.5.36) | | 7. WEAPON SYSTEM CODE (2.7.28) 4D | |
| 11. END ITEM PCN CODE (3.9.44) LEFETA | | 12. END ITEM SERIAL NO. (4.5.50) 450223 | | 13. DATE/TIME OPERATIONAL (5.1) DATE 0069 (5.2.55) TIME 1200 (5.6.59) | |
| 14. ITEM MISSION (6.0) a. <input checked="" type="checkbox"/> TACTICAL b. <input type="checkbox"/> TRAINING c. <input type="checkbox"/> FLOAT d. <input type="checkbox"/> TEST | | | | | |
| 15. ARE PARTS NEEDED TO REPAIR END ITEM AVAILABLE IN COMMAND? (6.1.63) a. <input type="checkbox"/> NO PARTS REQUIRED b. <input type="checkbox"/> PARTS UNDETERMINED c. <input type="checkbox"/> ON HAND IN PLL d. <input type="checkbox"/> ON HAND IN DS ASL e. <input type="checkbox"/> AVAILABLE AT GS (DX) f. <input type="checkbox"/> AVAILABLE THROUGH COMMAND CROSS LEVEL g. <input type="checkbox"/> AVAILABLE THROUGH CONTROLLED SUBSTITUTIONS h. <input checked="" type="checkbox"/> PARTS NOT AVAILABLE IN COMMAND | | | | | |
| 16. ACTIONS IN PROGRESS OR COMPLETED (6.4.66) a. <input type="checkbox"/> REPAIR COMPLETED b. <input type="checkbox"/> PARTS REQUEST CHANGED (Show change code in item 18b) c. <input type="checkbox"/> END ITEM JOB ORDERED (1.1) <input type="checkbox"/> TO DS (2.2) <input type="checkbox"/> TO GS (3.3) <input type="checkbox"/> FLOAT EXCHANGE | | | | 17a. NMCM SPT ORG (6.7.69) (7.0.72) | |
| | | | | b. NMCS SPT ORG (7.3.75) (7.6.78) | |
| 18a. CARD NO. (2.2.24) | b. CHANGE CODE (2.9) | c. DOCUMENT NUMBER (3.0.43) | d. ASN PART NUMBER (4.4.56) | e. NOUN/MOMENCLATURE (5.7.76) | f. QTY (7.9.80) |
| 01 | | WK4F6400667001 | 596-00-179-4749 | ELECTRON TUBE | 02 01 |
| 02 | | | | | |
| 03 | | | | | |
| 04 | | | | | |
| 05 | | | | | |
| 19. MALFUNCTION REMARKS LOW VOLTAGE WILL NOT REGULATE | | | | | |
| 20. TYPED OR PRINTED NAME, GRADE AND BRANCH OF AUTHENTICATING OFFICER LAWRENCE P. KELLY, CPT ADA | | | | SIGNATURE Lawrence P. Kelly | |

DA FORM 3266
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Figure 1
2

BN HQS 1
ARCOM 2
DS 3
UNIT FILE 4
OTHER 5

| MISSILE MATERIAL READINESS REPORT | | | | | | | | | | DO NOT WRITE IN THIS SPACE | |
|-----------------------------------|--|--|-------------|--|--|-------|--|--|------------|----------------------------|--|
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| 601 24 IN | | | REPLY C | | | 27227 | | | 5. ALGONQU | | |
| 520 ADG | | | 2752 ADA IN | | | | | | 6. DATE | | |
| AP 01 1963 | | | AP 01 1963 | | | | | | 7. MONTH | | |
| 8. WEAPON SYSTEM | | | | | | | | | | | |
| 9. SENTRY NAME | | | | | | | | | | | |
| 10. SERIAL NO. | | | | | | | | | | | |
| 11. PART | | | | | | | | | | | |
| 12. OPERATIONAL DATA | | | | | | | | | | | |
| 13. COMMENTS | | | | | | | | | | | |
| 14. SIGNATURE | | | | | | | | | | | |

Figure 1

APPENDIX B

READINESS RATING CRITERIA FOR
IMPROVED HAWK BATTERY (SQUARE)

| Report on DA Form 3266-1 | HTOR MISSILE SYSTEM LINES CODED ERC "A" | PCCN | Minimum Quantities of Equipment Required To Be On-Hand and Operational IS | |
|--------------------------------|---|---------|--|---|
| X | Improved CW Acq Radar (ICMAR) | LEFEIDA | 1 | <p>SYSTEM RATING INSTRUCTIONS: When the missile system meets the minimum requirements for all lines shown, that system is then considered Mission Capable (MC). Failure to meet the standard for one or more lines causes the system to be rated Not Mission Capable (NMC).</p> <p>NOTES:</p> <p>A. Unit must have either a fully operational ICC or IPCP configured as an ICC.</p> <p>B. Unit must have a fully operational Interrogator Set AN/TPX-46(V) integrated into the system.</p> <p>C. Data Cable Set will contain at a minimum 10 (X25) 017855, 6 (550) 017107, and 1 (350) 0108181 4 Data Cables.</p> <p>D. IPAR and IROR must be operational over 90% of the frequency band.</p> <p>E. All launchers must be cabled to an operational THIPR.</p> |
| X | Improved Pulse Acq Radar (IPAR) | LEFETA | 1 ^D | |
| X | Improved High Power ILL Radar (IHPIR) | LEFFBA | 1 | |
| X | Improved Range Only Radar (IROR) | LEFFRA | 1 ^D | |
| X | Improved Battery Control Central (to include fully op subcomps as listed): | LEFENA | 1 | |
| | A. Tactical Control Console (TCC) | | 1 | |
| | B. CW Tgt Dect Console (CWDC) | | 1 | |
| | C. Fire Control Console (FCC) | | 1 | |
| | D. Intercom Coord Unit (ICU) | | 1 | |
| X | Information and Coord Central (ICC)(to include fully op subcomps as listed): | LEFEIA | 1AB | |
| | A. Automatic Data Processor | | 1AR | |
| X | Interrogator Set AN/TPX-46(V) (IFF) | IFFODD | 1 ^B | |
| X | Data Converter Coord AN/GSA-77 (BTE) | BTEQAC | 1 | |
| X | Improved Platoon Comd Post (IPCP)(to include fully op subcomponents as listed): | LEFFYA | 1AB | |
| | A. Target Display and Engagement Control Console (TDECC) | | 1A | |
| | B. Automatic Data Processor (ADP) | | 1A | |
| X | Improved HAWK Launcher (Lchr) | LEFFCA | 3 ^F | |
| X | Improved Launcher Section Control Box (ILSCB) | LEFFPA | 1 | |
| X | Improved HAWK Missile | LEFFRA | 70% | |
| X | Generator 60KW, 400 Hz | 60KWCN | 4 | |
| X | Improved HAWK Loader Transporter (Ldr Transp) | HLDFR | 1 | |
| X | Cable Assy Set Elec (RIG) AN/GSA-130 (X0-1) consisting of the following: | LEFFSA | | |
| | A. Power Cables | | 9 | |
| | B. Data Cables | | 17 ^F | |
| X | Pallets | LEFFVA | 11 | |
| X | AN/TRC 145 | TRC145 | 1 | |

- d. Provide visibility as to Missile Materiel Readiness, Jun 80.

3. Follow-On Objectives

Follow-on objectives were established in July 1980 as follows:

- a. Assess status of AR 750-40 mechanizations, Jul 80.
- b. Develop a set of ADP programs to fully meet mechanization objectives, Jul-Sep 80.
- c. Develop a set of ADP programs to analyze AR 750-40 mechanized output, Aug-Oct 80.

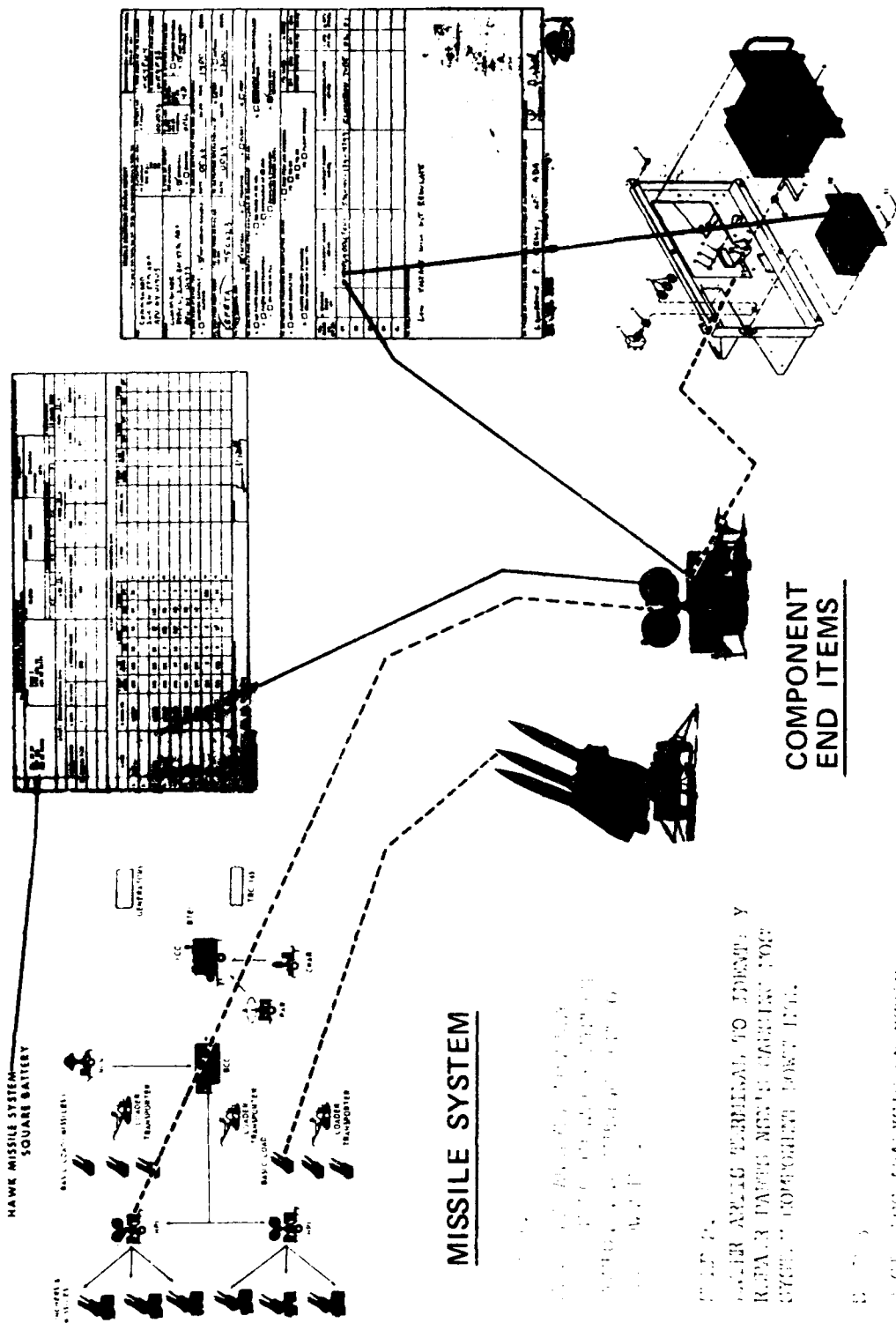
From analysis of the above objectives, a simple three step process has evolved to evaluate readiness. See Figure 4. This process is to:

- a. Manually analyze DA Form 3266-1 to determine system components causing most missile system down time.
- b. From this list of heavy hitters, determine national stock numbers failing most within end items and causing most down time. ARTIS Terminal access to the DA Form 3266 end item failure reports is used for this step.
- c. Prepare multifaceted investigation of specific NSN's to determine recommendations for NICP, NMP, Procurement, Quality Assurance, or design engineering action.

4. Development of Evaluation Programs

In order to facilitate the above evaluation, a number of data evaluation programs have been developed. These programs permit detailed analysis of compiled DA Form 3266. These programs identify the problem by organization, end item, and national stock number of spare parts. In addition, the individual DA Form 3266 data can be displayed in order to check any data entry. The programs shown below can be called up for any time period (i.e., last 30 days, 90 days, or 6 months to one year) if trend analysis is desired.

- a. Failures Selected by Organization
- b. Failures Selected by Weapon System
- c. Failures Selected by End Item
- d. Failures Selected by Mission Identification
- e. Occurrences of NSN by Organization



- f. Occurrences of NSN by Weapon System
- g. Occurrences of NSN by End Item
- h. Non-Mission Capable Supply/Non-Mission Capable Maintenance (NMCS/NMCM) or by organization
 - i. NMCS/NMCM by Weapon System
 - j. NMCS/NMCM by Serial Number
- k. Parts Not Available in Command
- l. Individual DA Form 3266
- m. Any National Stock Number

5. Analysis of Missile Readiness

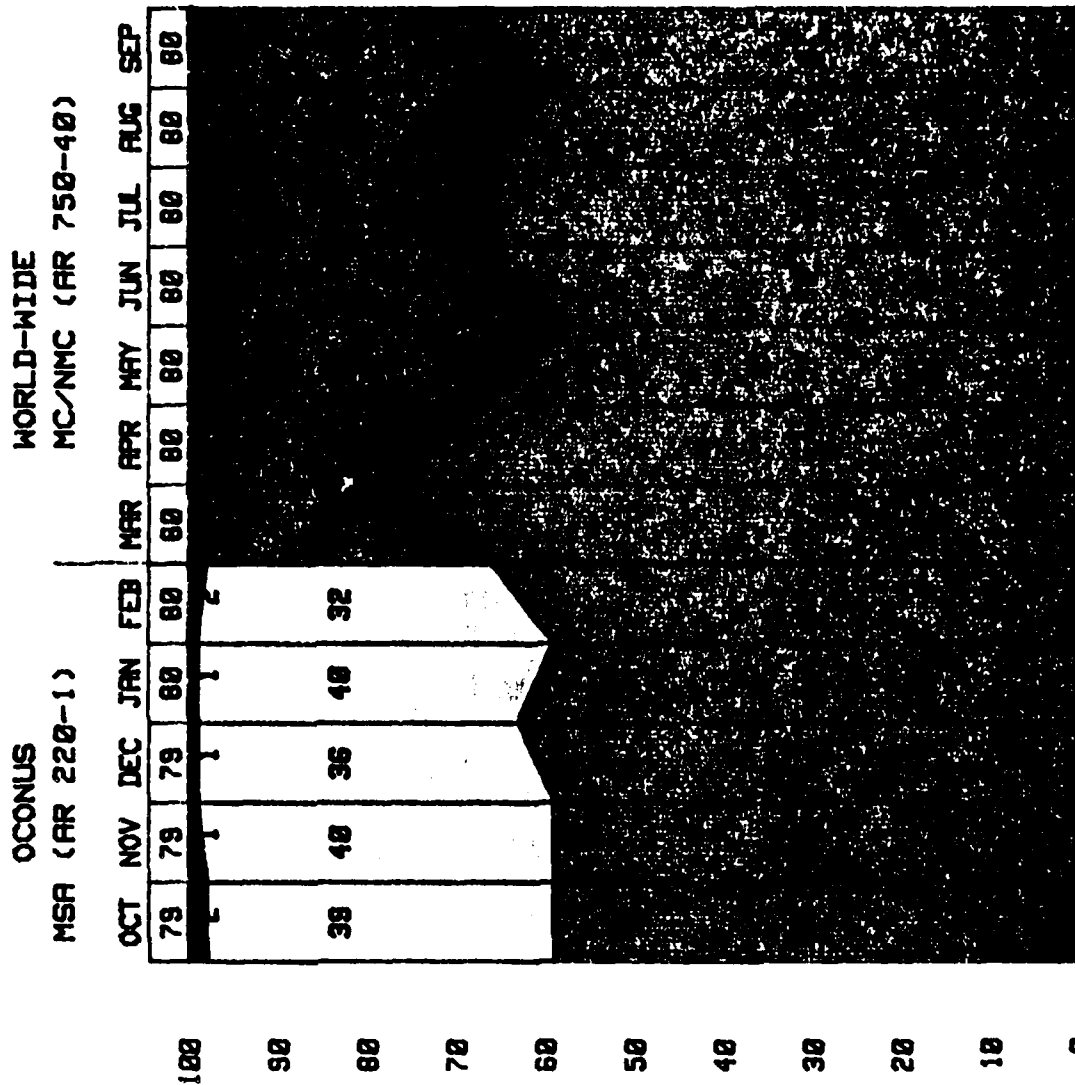
a. Figures 5 through 8 are examples of the materiel readiness of Missile System X for a typical month. From this analysis, overall trends in readiness performance of the missile system worldwide down to theater, command, and battalion level can be identified. Notational data is used to preclude classification of this paper.

b. Figures 9 and 10 show the components causing Missile System X's downtime both worldwide and by theater. Since Radar Y is consistently causing most of the system downtime, an analysis of all failure reports submitted on this radar is called up on the ARTIS Terminal and printed out. The analysis of the printout shows that the Liquid Cooler (NSN 1430-00-066-5696, AMDF price \$16,064.00 each) is the heavy hitter item most often reflected in the failure reports. The demand history for this stock number is then called up on the ARTIS Terminal and printed out. The demand history analysis shows that 182 Liquid Coolers have been issued in the past 24 months to support Radar Y's total density of 80 each. This means that on the average the Liquid Cooler is being replaced once a year or slightly more often. Further inquiry reveals the 2 Bn sample data collection mean time between failure rate is one Cooler failure every 3.5 months, most of which are repaired with piece parts at the DS level. Ultimately, two needed fixes are identified. One involves rerouting a wiring harness to prevent it from rubbing against the vibrating pump and wearing through the wiring insulation causing an electrical short and possible fire. The other involves a better oil coolant pressure leak test at the contractor's cooler rebuild shop to stop field rejections of rebuilt coolers for leaking coolant seals, hoses, etc.

c. Follow-up procedures are needed to insure that the specified corrective actions are in fact accomplished. Currently, a review of "old business" and status of these actions is accomplished before the start of the monthly MICOM readiness review for the DCG Readiness, Project Managers, and Directors. The objective is to get well on the problem-causing repair parts, thus improving the readiness of the heavy hitter component end item and thereby improve the total missile system materiel readiness performance.

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MISSILE SYSTEM X



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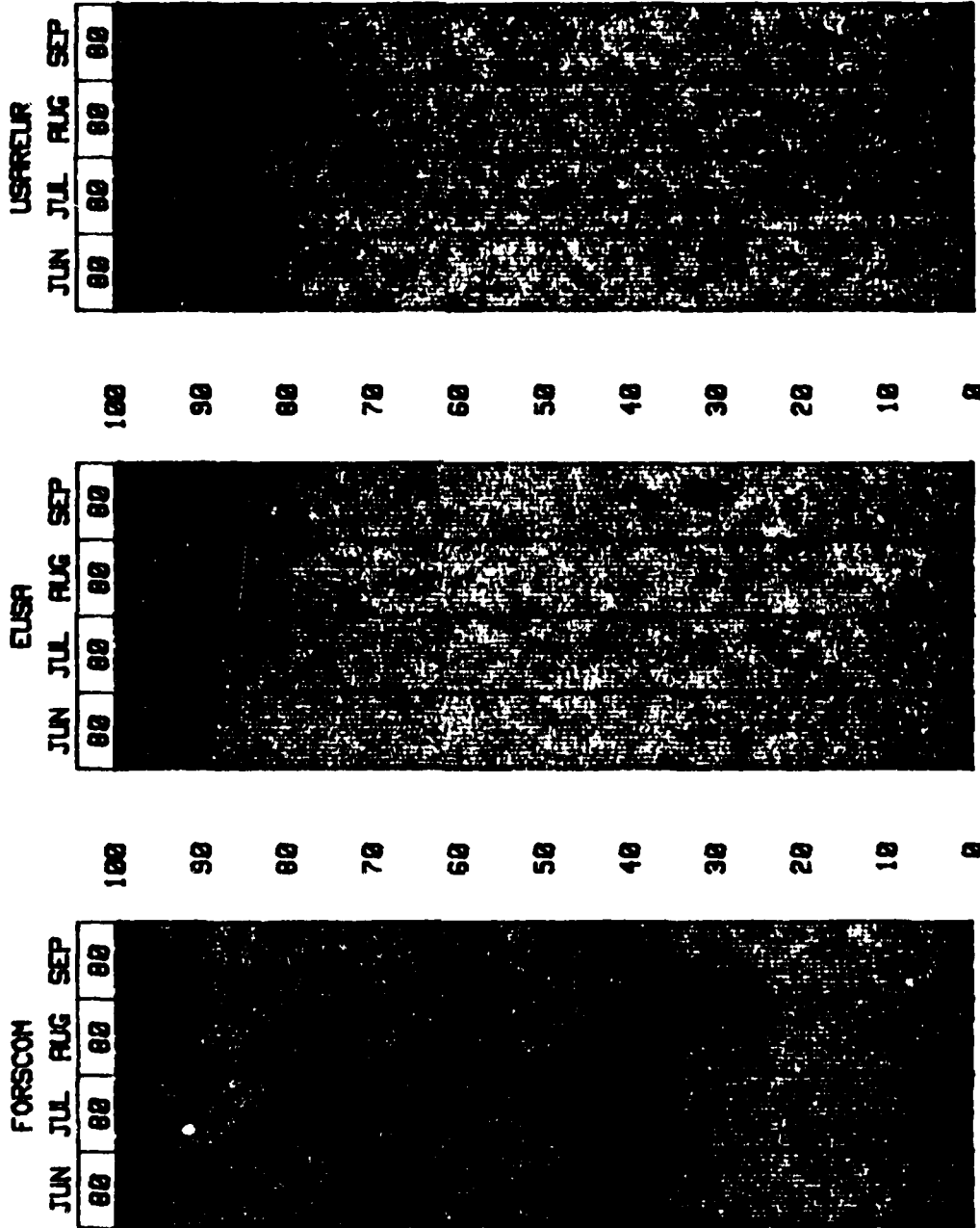
Figure 5

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MISSILE SYSTEM X

THEATER

MC/NMC (AR 750-40)



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Figure 6

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MISSILE SYSTEM X

| UNIT & MISSILE SYSTEM READINESS REPORTS (3266-1) | | | | | | | | | | |
|--|------|------|-----|-----|------|-----|------|------|------|------|
| USAREUR (45TH ARDCOM) | | | | | | | | | | |
| MC | NMCS | NMCM | | | | | | | | |
| 84 | 6 | 10 | | | | | | | | |
| SYSTEM AVAILABILITY | | | 2/3 | 1/3 | 3/61 | 3/6 | 2/54 | 2/61 | 3/55 | 6/51 |
| MC | | | 94 | 81 | 68 | 96 | 82 | 83 | 88 | 88 |
| NMCS | | | 2 | 4 | 14 | 4 | 7 | 7 | 6 | 6 |
| NMCM | | | 4 | 5 | 17 | 8 | 11 | 10 | 14 | 12 |
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UNCLASSIFIED

Figure 7

UNCLASSIFIED

MISSILE SYSTEM X

| UNIT & MISSILE SYSTEM READINESS REPORTS (3266-1) | | | | | | | | | | | | |
|--|------|------|-----|---------|------|------|------|------|------|----|------|------|
| EUSA (34TH ADA BDE) | | | | FORSCOM | | | | | | | | |
| MC | NMCS | NMCM | | MC | NMCS | NMCM | MC | NMCS | NMCM | MC | NMCS | NMCM |
| 86 | 4 | 18 | | 43 | 58 | 7 | | | | | | |
| SYSTEM AVAILABILITY | | | | | | | | | | | | |
| 1/6 | 2/70 | 3/82 | 3/4 | 3/65 | 7/65 | 1/8 | 5/75 | 1/50 | | | | |
| 90 | 81 | 31 | 0 | 49 | 86 | 89 | 28 | 0 | | | | |
| 5 | 5 | 49 | 100 | 45 | 1 | 11 | 54 | 100 | | | | |
| 5 | 14 | 20 | 0 | 6 | 13 | 0 | 10 | 0 | | | | |
| | | | | | | | | | | | | |
| 1/6 | 2/70 | 3/82 | 3/4 | 3/65 | 7/65 | 1/8 | 5/75 | 1/50 | | | | |
| | | | | | | | | | | | | |

UNCLASSIFIED

Figure 8

LEGEND

- ☒ RADIO A ☐ GEN
- ☒ RADAR Y ☒ LAUNCHR
- ☒ RADAR Z ☐ BCC

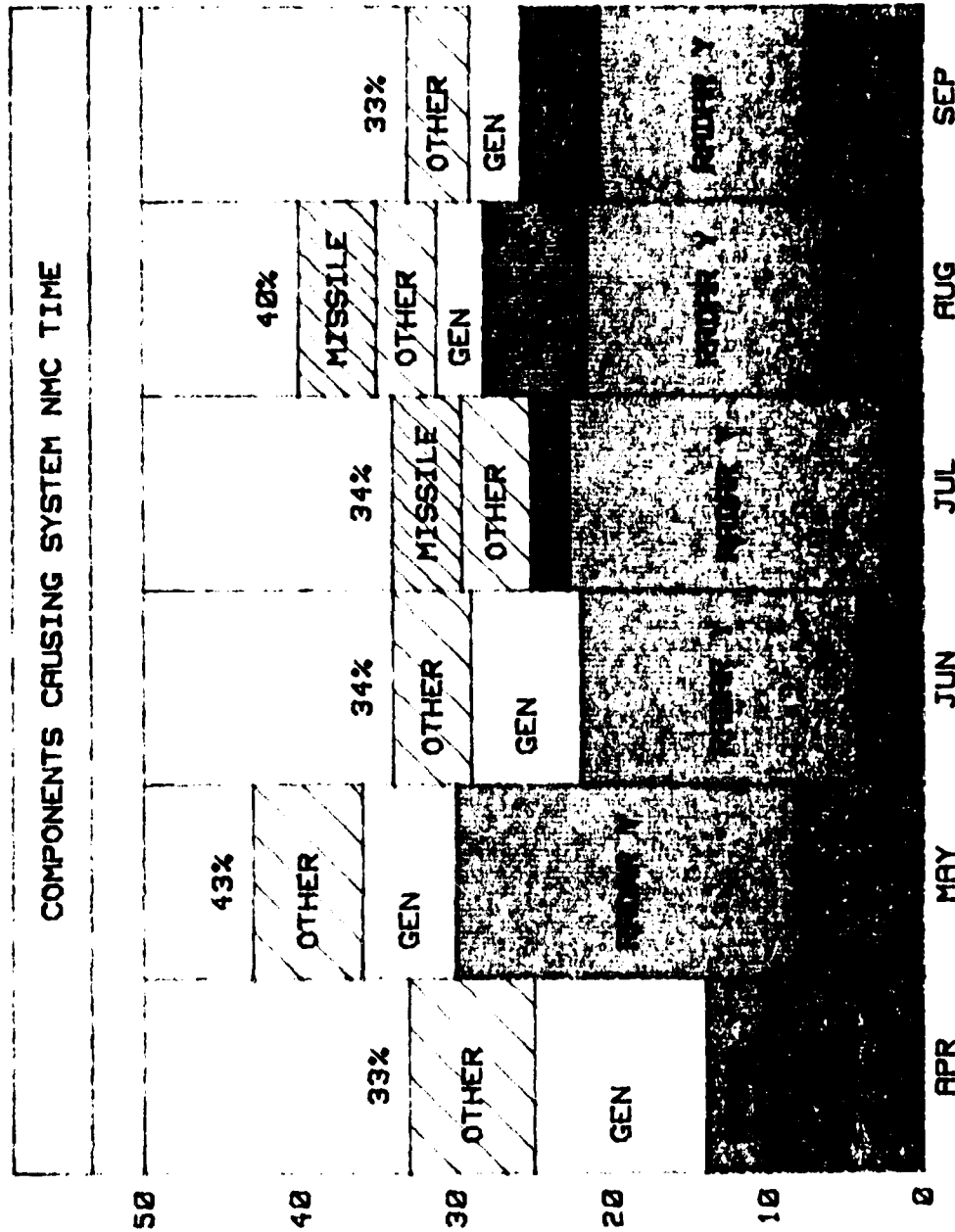
UNCLASSIFIED

☒ OTHER MISSILE SYSTEM X

☒ IFF

☒ MISSILE

WORLDWIDE



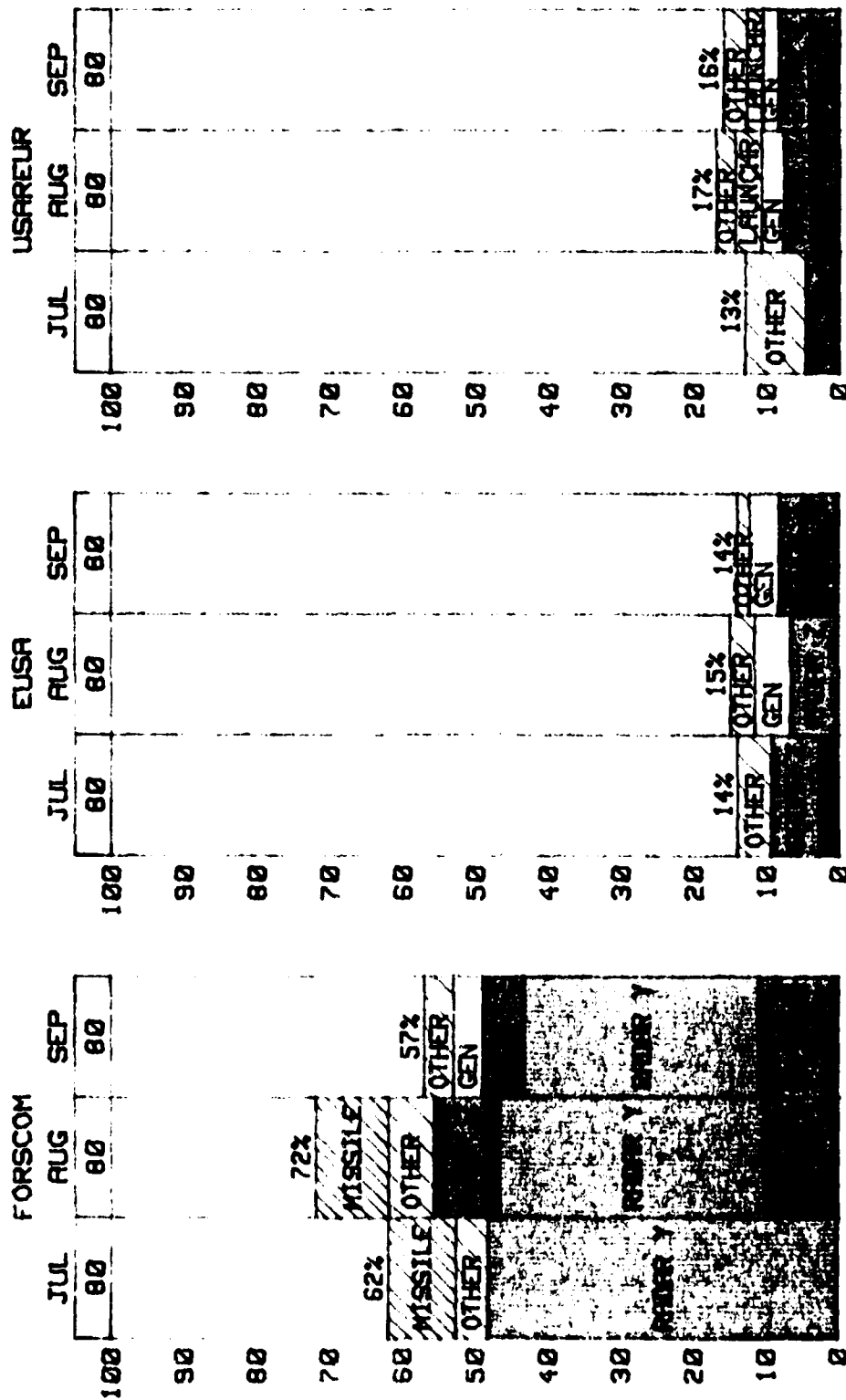
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Figure 9

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MISSILE SYSTEM X

COMPONENTS CAUSING SYSTEM NMC TIME
BY THEATER



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Figure 10

6. Present Objectives

The current objectives are to refine our readiness and logistical analysis procedures and establish realistic readiness yardsticks for future systems. This will be done by threat analysis, development of missile system hardware matrices, and assignment of rating criteria in coordination with the field missile community, Project Manager personnel, TRADOC schools, and DA staff. The immediate objectives are to:

- a. Compile historical records - Lessons Learned.
- b. Analyze data records for remedial actions needed.
- c. Use data analysis to effect timely feedback to user.
- d. Maintain coordination between MICOM support elements and field commanders.

7. Performance Feedback Program

In conjunction with actions as outlined in Para 6 above, a user feedback program is being implemented in three phases. In Phase 1, as a product of our repair parts expediting effort, we began in January 1980 to provide daily feedback to field requisitioners on status of requisitions for repair parts reported as required on the DA Form 3266 failure reports. In Phase 2, beginning in May of this year, a program of data feedback to the field commanders was initiated. This program consists of providing detailed analysis of weapon system and missile unit materiel readiness performance in color transparency form on a monthly basis. Starting at MACOM level, we now plan to go down to division level by December. Field response to this program has been rapid and very positive.

In Phase 3, between now and February 1981, we expect to have established a mail order catalog of selected computer printouts. These printouts will show the failure history of a unit, a missile system, and end items to include repair parts for each failure. These reports will be made available to commanders down to battalion level on a request basis.

8. Conclusion

The objective of the Missile Materiel Readiness Reporting System was originally to provide the Commander, MICOM, with visibility as to specific causes for degraded missile materiel readiness in the most timely manner feasible. In addition, continuing efforts have been implemented which provide the capability to analyze the field reports and initiate timely remedial action. The field commander can now be apprised of the status of his missile readiness in comparison with his contemporaries and of positive action being taken by support agencies to improve his readiness posture as well as an indication of those actions he can take locally to help himself.

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